SEQUENCE LISTING

<110> Dolly, James Oliver
      Li, Yan
      Chan, C.K.
      Aoki, Kei Roger

<120> Activatable Recombinant Neurotoxins

<130> 17311(BO)

<140> 09/648,692
<141> 2000-08-25

<150> 60/150,710
<151> 1999-08-25

<160> 24

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<220>
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<400> 3

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        <210> 5
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        <210> 7
        <211> 65
        <212> PRT
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        <220>
        <223> Engineered Intrachain loop region for C. tetani
              toxin

        <400> 7
Ser Lys Leu Ile Gly Leu Cys Lys Lys Ile Ile Pro Pro Thr Asn Ile
1               5                   10                  15
Arg Glu Asn Leu Tyr Asn Arg Thr Ala Gly Glu Lys Leu Tyr Asp Asp
            20                  25                  30
Asp Asp Lys Asp Arg Trp Gly Ser Ser Arg Ser Leu Thr Asp Leu Gly
        35                  40                  45
Gly Glu Leu Cys Ile Lys Asn Glu Asp Leu Thr Phe Ile Ala Glu Lys
    50                  55                  60
Asn
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<210> 8
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<212> DNA
<213> Artificial Sequence

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<400> 9
gtcatcgtcg taaagctttt ctcctgcagt tctatt                              36

<210> 10
<211> 4017
<212> DNA
<213> Clostridium botulinum

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tttatctcta actgtttaac tttaacttat aacaatgtaa atatatattt gtctataaaa   120
aatcaagatt acaattgggt tatatgtgat cttaatcatg atataccaaa aaagtcatat   180
ctatggatat taaaaaatat ataaatttaa aattaggaga tgctgtatat gccaaaaatt   240
aatagtttta attataatga tcctgttaat gatagaacaa ttttatatat taaaccaggc   300
ggttgtcaag aatttttataa atcatttaat attatgaaaa atatttggat aattccagag   360
agaaatgtaa ttggtacaac cccccaagat tttcatccgc ctacttcatt aaaaaatgga   420
gatagtagtt attatgaccc taattatttta caaagtgatg aagaaaagga tagattttta   480
aaaatagtca caaaaatatt taatagaata aataataatc tttcaggagg gatttttatta   540
gaagaactgt caaaagctaa tccatattta gggaatgata atactccaga taatcaattc   600
catattggtg atgcatcagc agttgagatt aaattctcaa atggtagcca agacatacta   660
ttacctaatg ttattataat gggagcagag cctgatttat ttgaaactaa cagttccaat   720
atttctctaa gaaataatta tatgccaagc aatcaccgtt ttggatcaat agctatagta   780
acattctcac ctgaatattc ttttagattt aatgataatt gtatgaatga atttattcaa   840
gatcctgctc ttacattaat gcatgaatta atacattcat tacatggact atatggggct   900
aaagggatta ctacaaagta tactataaca caaaaacaaa atcccctaat aacaaatata   960
agaggtacaa atattgaaga attcttaact tttggaggta ctgatttaaa cattattact  1020
agtgctcagt ccaatgatat ctatactaat cttctagctg attataaaaa aatagcgtct  1080
aaacttagca aagtacaagt atctaatcca ctacttaatc cttataaaga tgtttttgaa  1140
gcaaagtatg gattagataa agatgctagc ggaatttatt cggtaaatat aaacaaattt  1200
aatgatattt ttaaaaaatt atacagcttt acggaatttg atttacgaac taaatttcaa  1260
gttaaatgta ggcaaactta tattggacag tataaatact tcaaactttc aaacttgtta  1320
aatgattcta tttataatat atcagaaggc tataatataa ataatttaaa ggtaaatttt  1380
agaggacaga atgcaaattt aaatcctaga attattacac caattacagg tagaggacta  1440
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gtaaaaaaaa tcattagatt ttgtaaaaat attgtttctg taaaaggcat aaggaaatca   1500
atatgtatcg aaataaataa tggtgagtta tttttttgtgg cttccgagaa tagttataat   1560
gatgataata taaatactcc taaagaaatt gacgatacag taacttcaaa taataattat   1620
gaaaatgatt tagatcaggt tattttaaat tttaatagtg aatcagcacc tggactttca   1680
gatgaaaaat taaatttaac tatccaaaat gatgcttata taccaaaata tgattctaat   1740
ggaacaagtg atatagaaca acatgatgtt aatgaactta atgtattttt ctatttagat   1800
gcacagaaag tgcccgaagg tgaaaataat gtcaatctca cctcttcaat tgatacagca   1860
ttattagaac aacctaaaat atatacattt ttttcatcag aatttattaa taatgtcaat   1920
aaacctgtgc aagcagcatt atttgtaagc tggatacaac aagtgttagt agattttact   1980
actgaagcta accaaaaaag tactgttgat aaaattgcag atatttctat agttgttcca   2040
tatataggtc ttgctttaaa tataggaaat gaagcacaaa aaggaaattt taaagatgca   2100
cttgaattat taggagcagg tatttttatta gaatttgaac ccgagctttt aattcctaca   2160
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aaagcaataa ataatgcatt gaaagaaaga gatgaaaaat ggaaagaagt atatagtttt   2280
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tatcaagctt tacaaaatca agtaaatgca attaaaacaa taatagaatc taagtataat   2400
agttatactt tagaggaaaa aaatgagctt acaaataaat atgatattaa gcaaatagaa   2460
aatgaactta atcaaaaggt ttctatagca atgaataata tagacaggtt cttaactgaa   2520
agttctatat cctatttaat gaaaataata aatgaagtaa aaattaataa attaagagaa   2580
tatgatgaga atgtcaaaac gtatttattg aattatatta tacaacatgg atcaatcttg   2640
ggagagagtc agcaagaact aaattctatg gtaactgata ccctaaataa tagtattcct   2700
tttaagcttt cttcttatac agatgataaa atttttaattt catattttaa taaattcttt   2760
aagagaatta aaagtagttc agtttttaaat atgagatata aaaatgataa atacgtagat   2820
acttcaggat atgattcaaa tataaatatt aatggagatg tatataaata tccaactaat   2880
aaaaatcaat ttggaatata taatgataaa cttagtgaag ttaatatatc tcaaaatgat   2940
tacattatat atgataataa atataaaaat tttagtatta gtttttgggt aagaattcct   3000
aactatgata ataagatagt aaatgttaat aatgaataca ctataataaa ttgtatgaga   3060
gataataatt caggatggaa agtatctctt aatcataatg aaataaatttg gacattcgaa   3120
gataatcgag gaattaatca aaaattagca tttaactatg gtaacgcaaa tggtatttct   3180
gattatataa ataagtggat ttttgtaact ataactaatg atagattagg agattctaaa   3240
ctttatatta atggaaattt aatagatcaa aaatcaattt taaatttagg taatattcat   3300
gttagtgaca atatattatt aaaaatagtt aattgtagtt atacaagata tattggtatt   3360
agatatttta atatttttga taagaatta gatgaaacag aaattcaaac tttatatagc   3420
aatgaaccta atacaaatat tttgaaggat ttttggggaa attatttgct ttatgacaaa   3480
gaatactatt tattaaatgt gttaaaacca aataactta ttgataggag aaaaagattct   3540
actttaagca ttaataatat aagaagcact attctttttag ctaatagatt atatagtgga   3600
ataaaagtta aaatacaaag agttaataat agtagtacta acgataatct tgttagaaag   3660
aatgatcagg tatatattaa ttttgtagcc agcaaaactc acttatttcc attatatgct   3720
gatacagcta ccacaaataa agagaaaaca ataaaaatat catcatctgg caatagattt   3780
aatcaagtag tagttatgaa ttcagtagga aattgtacaa tgaattttaa aaataataat   3840
ggaaataata ttgggttgtt aggtttcaag gcagatactg tcgttgctag tacttggtat   3900
tatacacata tgagagatca tacaaacagc aatggatgtt tttggaactt tatttctgaa   3960
gaacatggat ggcaagaaaa ataaaaatta gattaaacgg ctaaagtcat aaattcc      4017
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        <210> 11
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        <213> Artificial Sequence

        <220>
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<210> 12
<211> 36
<212> DNA
<213> PCR primer

<400> 12
cccctgcagt catttttctt gccatccatg ttcttc   36

<210> 13
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 13
cagttaatac attcattaca tggactatat g   31

<210> 14
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 14
atgcattaat gtaagagcag gatctt   26

<210> 15
<211> 5
<212> PRT
<213> Unknown

<220>
<223> protease cleavage site

<400> 15
Asp Asp Asp Asp Lys
1   5

<210> 16
<211> 8
<212> PRT
<213> Unknown

<220>
<223> Protease cleavage site

<400> 16
Leu Glu Val Leu Phe Gln Gly Pro
1   5

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<210> 17
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<212> PRT
<213> Clostridium species

<220>
<221> ZN_FING
<222> (1)...(5)
<223> Xaa=any amino acid

<400> 17
His Glu Xaa Xaa His
1               5


<210> 18
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<213> Artificial Sequence

<220>
<223> Linker

<400> 18
ggagaaaagc tttacgacga tgacgataag gatcgatggg gatcctctag a          51


<210> 19
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Linker

<400> 19
Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr
1               5                   10                  15
Gly Gly Gln Gln Val Asp
            20


<210> 20
<211> 19
<212> PRT
<213> Clostridium botulinum

<400> 20
Ser Leu Thr Asp Leu Gly Gly Glu Leu Cys Ile Lys Ile Lys Asn Glu
1               5                   10                  15
Asp Leu Thr


<210> 21
<211> 54
<212> DNA
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           \<213\> Artificial Sequence

           \<220\>
           \<223\> Linker

           \<400\> 21
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           \<210\> 22
           \<211\> 7
           \<212\> PRT
           \<213\> Artificial Sequence

           \<220\>
           \<223\> Protease cleavage site. Xaa equals any amino
                 acid.

           \<400\> 22
Glu Xaa Xaa Tyr Ser Gln Ser
1   5

           \<210\> 23
           \<211\> 7
           \<212\> PRT
           \<213\> Artificial Sequence

           \<220\>
           \<223\> Protease cleavage site. Xaa equals any amino
                 acid.

           \<400\> 23
Glu Xaa Xaa Tyr Xaa Gln Gly
1   5

           \<210\> 24
           \<211\> 18
           \<212\> PRT
           \<213\> Artificial Sequence

           \<220\>
           \<223\> Translated PCR fragment

           \<400\> 24
Met Arg Gly Ser His His His His His His Gly Ser Pro Lys Ile Asn
1   5   10   15
Ser Thr